SURAT PERNYATAAN
PENGALIHAN HAK PUBLIKASI


Kami menyetujui hak publikasi pengelektronikannya kepada Lembaga Penelitian dan Pengabdian kepada Masyarakat (LPPM) Universitas Muhammadiyah Surakarta.

Jakarta, 30 Oktober 2013

Panitia Pelaksana ICMCTA 2013
Universitas Indonesia,

[Signature]
SURAT TUGAS
No. 585/A.3-III/LPPM/X/2013

Bismillahirrohmanirrohim

Ketua Lembaga Penelitian dan Pengabdian pada Masyarakat Universitas Muhammadiyah Surakarta menugaskan kepada:

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Bentuk Tugas/Kegiatan : Sebagai Peserta dan Presenter Poster pada:
                        : International Conference on Medicinal Chemistry
                        : and Timmerman Award 2013 (ICMCTA 2013) di
                        : Universitas Indonesia.

Tempat Kegiatan : Kampus Universitas Indonesia Depok
Tanggul Kegiatan : 29 s/d 30 Oktober 2013
Penyelenggara Kegiatan : Fakultas Farmasi Universitas Indonesia

Demikian harap dilaksanakan sebaik-baiknya.

Surakarta, 26 Oktober 2013

Ketua,

Prof. Dr. Harun Joko Prayitno
NIDN 00-280465-01
NIP 19650428 199303 1001

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<th>TANGGAL DATANG</th>
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September 16, 2013

Dear Mr. Muhtadi

We are pleased to inform you that your abstract below has been accepted to be presented in ICMCTA2013 (International Conference on Medicinal Chemistry and Timmerman Award 2013) which will be held on 29 - 30th October 2013 at University of Indonesia.

Reference Number: P25

Title of Abstract: ANTIOXIDANT ACTIVITY, TOTAL PHENOLIC AND FLAVONOID CONTENTS OF ETHANOLIC EXTRACTS OF LOCAL LONGAN (Euphoria longan Lour.) SEEDS AND RINDS

Presentation type: Poster Presentation

Please visit our website http://www.icmcta2013.com for the schedule of presentation and registration for those whom not registered yet.

We are looking forward for your participation and presentation at this event.

Kind regards

Dr. Arry Yanuar
ANTIOXIDANT ACTIVITY, TOTAL PHENOLIC AND FLAVONOID CONTENT OF ETHANOLIC EXTRACTS OF LOCAL LONGAN (Euphorbia longan Lour.) SEEDS AND RINDS

Muhtadi*, Rijka Aninda, Resita Melannisa, Haryoto, Tanti Azizah, Feni Indrayudha, Andi Suhendi

The antioxidant, total phenolics and flavonoid content of local Longan (Euphorbia longan Lour.) seeds and rinds were determined. The antioxidant activity test of ethanolic extract, hexane, ethyl acetate and methanol-water fractions of local longan seeds and rinds were evaluated by DPPH (2,2-diphenyl-1-picrylhydrazil) method. The total phenolic contents and total flavonoid contents were assessed spectrophotometrically. The results showed that the fraction of ethanol extract, ethyl acetate and methanol-water of longan seeds and rinds had high antioxidant activity whereas the hexane fraction had lowest activity. The highest activity was indicated of the ethyl acetate fraction longan rinds (IC50 = 9.23 µg/ml), ethyl acetate fraction longan seeds (IC50 = 9.50 µg/ml), and wasn't significantly differ with vitamin E (IC = 8.88 µg/ml). The total phenolic content of the ethanol extract of longan rinds and seeds as well as fractions ranged from 8.72 ± 0.64 to 692.85 ± 41.11 mg/g sample. Whereas the total flavonoid levels in the samples ranged from 80.64 ± 6.98 to 680.15 ± 40.94 mg/g sample.

Keywords: Ethanol extract of the local longan seeds and rinds, fractions, antioxidants, 2,2-diphenyl-1-picrylhydrazil, total phenolic, total flavonoid.

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ANTIOXIDANT ACTIVITY, TOTAL PHENOLIC AND FLAVONOIDS CONTENT OF ETHANOLIC EXTRACTS OF LOCAL LONGAN (Euphoria longan Lour.) SEEDS AND RINDS

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Abstract

The antioxidant, phenolics and flavonoids content of local Longan (Euphoria longan Lour.) seeds and rinds were determined. The antioxidant activity test of ethanolic extract, hexane, ethyl acetate and methanol-water fractions of local longan seeds and rinds were evaluated by DPPH (2,2-diphenyl-1-picrylhydrazil) method. The total phenolic contents and total flavonoids contents were assessed spectrophotometrically. The results showed that the fraction of ethanol extract, ethyl acetate and methanol-water of longan seeds and rinds had high antioxidant activity whereas the hexane fraction had lowest activity. The highest activity was indicated by the ethyl acetate fraction of longan rinds (IC_{50} = 9.23 µg/ml), ethyl acetate fraction of longan seeds (IC_{50} = 9.50 µg/ml), and wasn’t significantly differ with vitamin E (IC_{50} = 8.88 µg/ml). The total phenolic content of the ethanol extract of longan rinds and seeds as well as fractions ranged from 8.72 ± 0.64 to 692.85 ± 41.11 mg/g sample. Whereas the total flavonoids levels in the samples ranged from 80.64 ± 6.98 to 680.15 ± 40.94 mg/g sample.

Keywords: The local longan seeds and rinds, ethanolic extract and fractions, antioxidants, 2,2-diphenyl-1-picrylhydrazil, total phenolic, total flavonoid.

Introduction

• Fruit peels are often regarded as a waste or garbage.
• Whereas chemically, “waste” are organic materials that have chemical and biological activity.
• Pre-screening studies to test the antioxidant activity, cytotoxic and antibacterial of waste fruit peels are still very limited.
• From Kelengkeng (Euphoria longan) fruit skin: (+)-epicatechin, proanthocyanidin A2, ellaginate acid, quercetin, kaempferol glycosides and hydroxycinnamate derivatives (Jaitrong et. al, 2006).

Objectives

1. This research aims to determine the potential activity of antioxidant of local Longan (Euphoria longan Lour.) seeds and rinds using DPPH assay.
2. To search the prospective antioxidant of crude extract and their fractions from local Longan (Euphoria longan Lour.) seeds and rinds as herbal medicine material.

Research Method

Spectroscopy analysis (UV, IR, NMR)

Result & Discussion

(a)

(b)

Table 1. Antioxidant activity, flavonoids and phenolic total levels of ethanolic extract and their fraction of Longan peel and seed

<table>
<thead>
<tr>
<th>Sample</th>
<th>Antioxidant Activity</th>
<th>Total Flavonoids</th>
<th>Total Phenolics</th>
</tr>
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<tbody>
<tr>
<td>Peel</td>
<td>Ethanol extract</td>
<td>15.83 ± 0.84</td>
<td>66.89 ± 8.68</td>
</tr>
<tr>
<td></td>
<td>Fraction A</td>
<td>15.83 ± 0.84</td>
<td>66.89 ± 8.68</td>
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<tr>
<td></td>
<td>Fraction B</td>
<td>15.83 ± 0.84</td>
<td>66.89 ± 8.68</td>
</tr>
<tr>
<td></td>
<td>Fraction C</td>
<td>15.83 ± 0.84</td>
<td>66.89 ± 8.68</td>
</tr>
</tbody>
</table>

Picture 2. Determination of IC_{50} value Vitamin E and Samples

• Ethanolic extract of Longan seed and peel had IC_{50} value near similar to Vitamin E.
• Ethyl acetate fraction of Longan seed and peel are more active than total extract and the other fraction. Ethyl acetate fraction has highest antioxidant activity.

Conclusion

1. The ethanolic extract of local Longan peels and rinds showed a highly antioxidant activity, with the IC_{50} value 11.85 ppm and 13.41 ppm, respectively.
2. Ethyl acetate fraction showed more active than total extract and the other fractions.
3. Ethyl acetate fraction of local Longan peel is the best prospective antioxidant ingredient.

Reference


International Conference on Medicinal Chemistry and Timmermann Award 2013, Jakarta; October 29-30, 2013